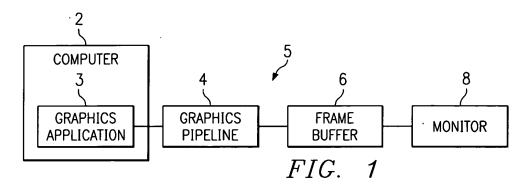100110671-1
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Image from an Image Generated from a Non-Stereo Application
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FIG. 1

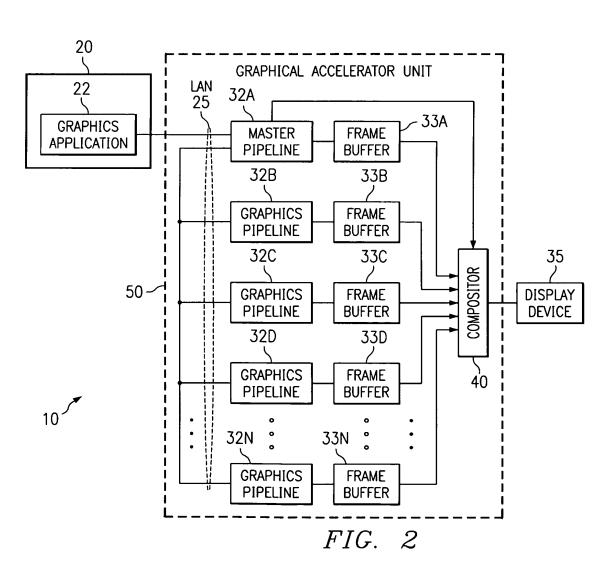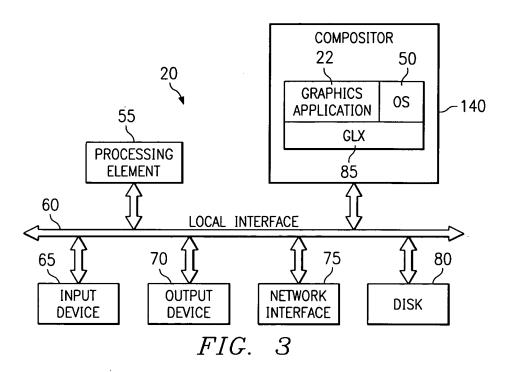

FIG. 2

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COMPOSITOR

22        50

GRAPHICS
APPLICATION    OS          —140

GLX

85

20

55

PROCESSING
ELEMENT

60

LOCAL INTERFACE

65          70          75          80

INPUT
DEVICE      OUTPUT
DEVICE      NETWORK
INTERFACE   DISK

*FIG. 3*

140

X SERVER

166 — X SERVER DISPATCH        —162

167 —  DIX     GLX    —168      SLAVE
CONTROLLER

DDX   —169                      161

32A

155

PROCESSING
ELEMENT

160

LOCAL INTERFACE

165         170         175         180         185

INPUT
DEVICE      OUTPUT
DEVICE      NETWORK
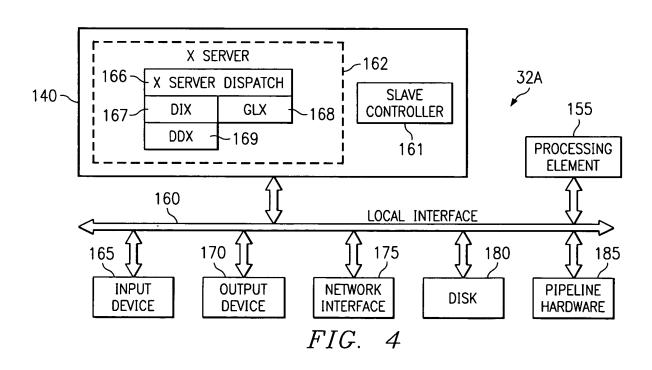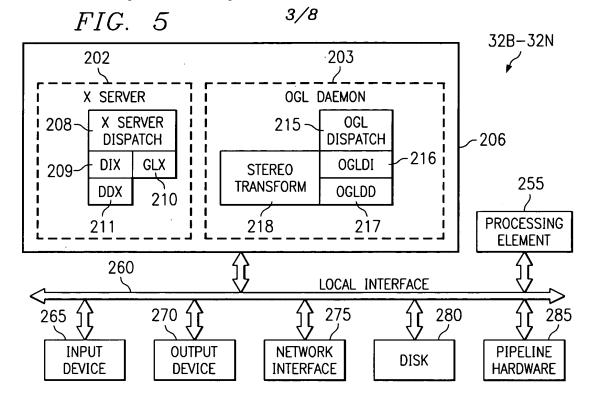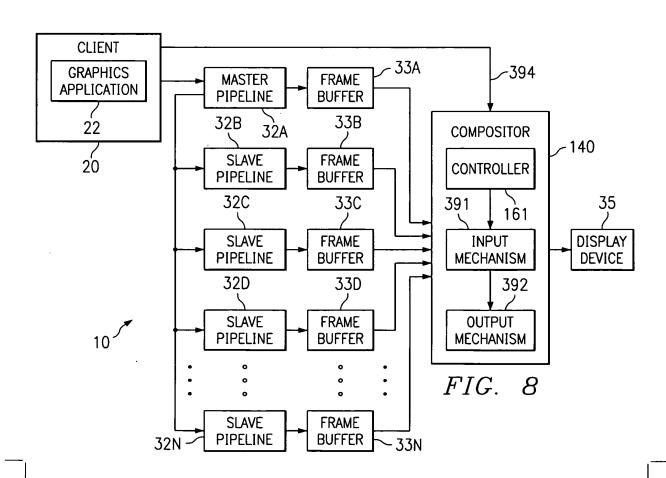INTERFACE   DISK        PIPELINE
HARDWARE

*FIG. 4*

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*FIG. 5*

**32B-32N**

```
┌─────────────────────────────────────────────────────────────┐
│        202                              203                   │
│  ┌─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐    ┌─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐      │
│  │    X SERVER        │    │      OGL DAEMON           │      │
│  │  ┌──────────────┐  │    │  215 ┌──────────────┐     │      │
│ 208│  │  X SERVER   │  │    │      │     OGL      │     │      │
│    │  │  DISPATCH   │  │    │      │   DISPATCH   │     │──206 │
│ 209│  ├──────┬──────┤  │    │  ┌───────┼──────────┤     │      │
│    │  │ DIX  │ GLX  │  │    │  │ STEREO│   OGLDI  │──216│      │
│    │  ├──────┤      │  │    │  │TRANS- ├──────────┤     │      │
│    │  │ DDX  │  210 │  │    │  │ FORM  │   OGLDD  │     │      │
│    │  └──────┘      │  │    │  └───────┴──────────┘     │      │
│  │     211          │    │    218        217         │        │
│  └─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘    └─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘      │
└─────────────────────────────────────────────────────────────┘
```

**255**
PROCESSING ELEMENT

260

LOCAL INTERFACE

265 → INPUT DEVICE
270 → OUTPUT DEVICE
275 → NETWORK INTERFACE
280 → DISK
285 → PIPELINE HARDWARE

---

**CLIENT**
GRAPHICS APPLICATION
22
20

MASTER PIPELINE → FRAME BUFFER — 33A
32B   32A

394

SLAVE PIPELINE → FRAME BUFFER
32B   33B

SLAVE PIPELINE → FRAME BUFFER
32C   33C

SLAVE PIPELINE → FRAME BUFFER
32D   33D

SLAVE PIPELINE → FRAME BUFFER
32N   33N

10

**COMPOSITOR**
CONTROLLER — 140

391   161
INPUT MECHANISM
392
OUTPUT MECHANISM

35
DISPLAY DEVICE

*FIG. 8*

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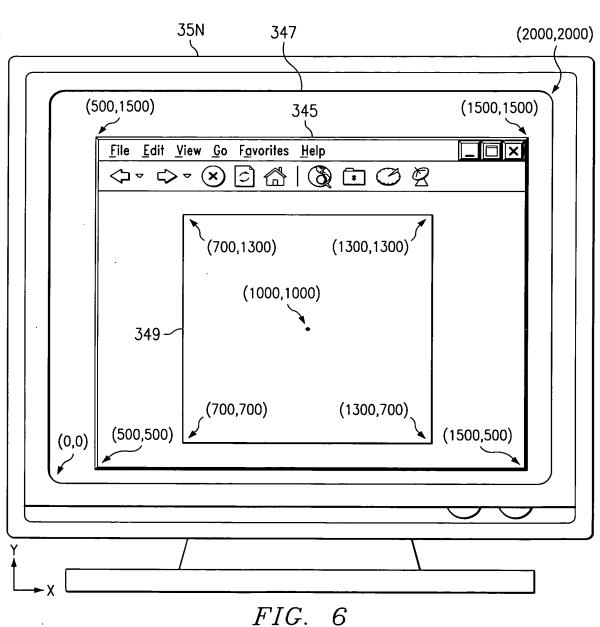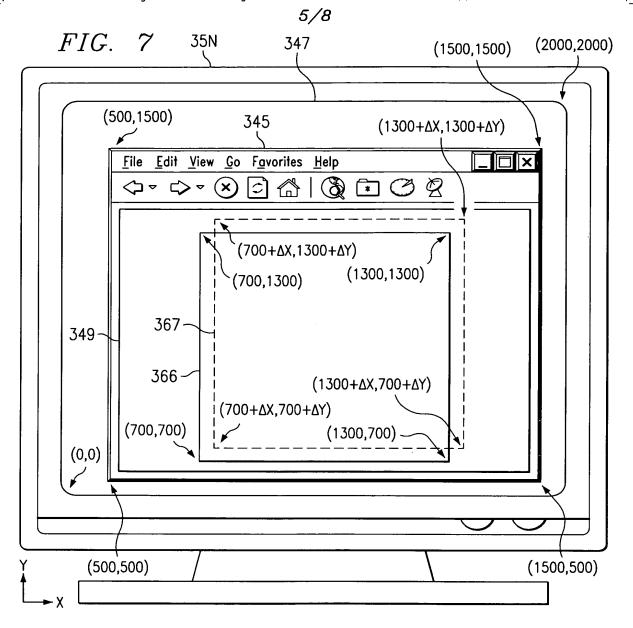Image from an Image Generated from a Non-Stereo Application

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35N    347    (2000,2000)

(500,1500)    345    (1500,1500)

File  Edit  View  Go  Favorites  Help

(700,1300)    (1300,1300)

(1000,1000)

349

(700,700)    (1300,700)

(0,0)    (500,500)    (1500,500)

Y

X

*FIG. 6*

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FIG. 7

35N    347    (1500,1500)    (2000,2000)

(500,1500)    345    (1300+ΔX,1300+ΔY)

File  Edit  View  Go  Favorites  Help

(700+ΔX,1300+ΔY)
(700,1300)    (1300,1300)

349
367
366
(1300+ΔX,700+ΔY)
(700+ΔX,700+ΔY)
(700,700)    (1300,700)
(0,0)

(500,500)    (1500,500)

Y

X

402 — RECEIVE 2D AND 3D GRAPHICAL DIGITAL VIDEO DATA
FROM MULTIPLE PROCESSING PIPELINES

404 — COMBINE THE 2D AND 3D GRAPHICAL DATA FROM THE MULTIPLE
PROCESSING PIPELINES TO FORM A COMPOSITE DATA STREAM

406 — PROVIDE THE COMPOSITE DATA STREAM SUITABLE FOR DISPLAYING
AN IMAGE ON A SINGLE DISPLAY SCREEN OF A DISPLAY DEVICE

FIG. 9

100110671-1
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Method, Node, and Network for Compositing a Three-Dimensional Stereo
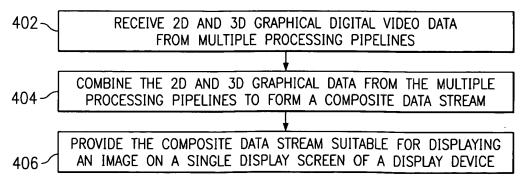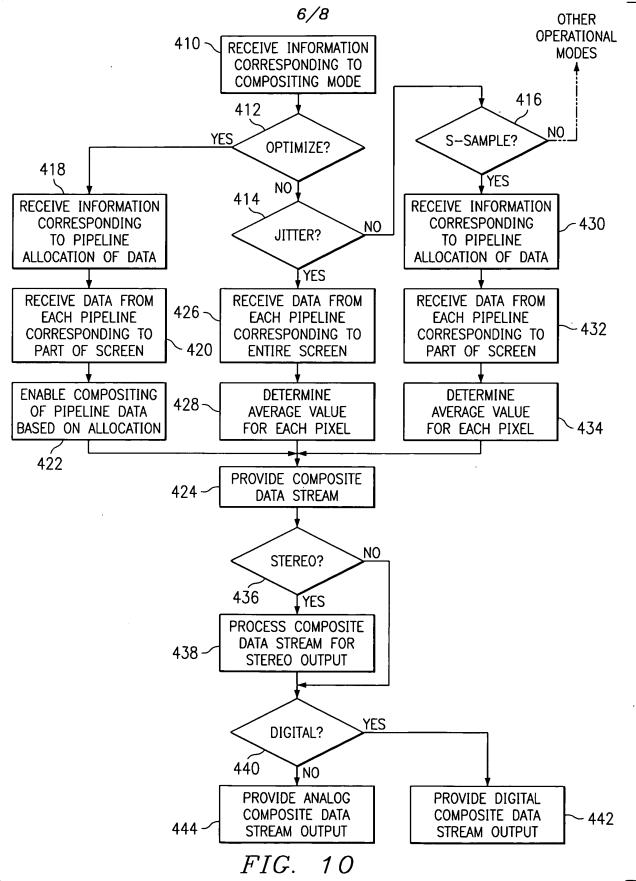Image from an Image Generated from a Non-Stereo Application

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OTHER
OPERATIONAL
MODES

410 — RECEIVE INFORMATION CORRESPONDING TO COMPOSITING MODE

412

416

YES ← OPTIMIZE?

S-SAMPLE? → NO

NO

414

418

RECEIVE INFORMATION CORRESPONDING TO PIPELINE ALLOCATION OF DATA

JITTER? → NO

YES

RECEIVE INFORMATION CORRESPONDING TO PIPELINE ALLOCATION OF DATA — 430

YES

RECEIVE DATA FROM EACH PIPELINE CORRESPONDING TO PART OF SCREEN

426 — RECEIVE DATA FROM EACH PIPELINE CORRESPONDING TO ENTIRE SCREEN

420

RECEIVE DATA FROM EACH PIPELINE CORRESPONDING TO PART OF SCREEN — 432

ENABLE COMPOSITING OF PIPELINE DATA BASED ON ALLOCATION

428 — DETERMINE AVERAGE VALUE FOR EACH PIXEL

DETERMINE AVERAGE VALUE FOR EACH PIXEL — 434

422

424 — PROVIDE COMPOSITE DATA STREAM

STEREO? → NO

436 ↓ YES

438 — PROCESS COMPOSITE DATA STREAM FOR STEREO OUTPUT

DIGITAL? → YES

440 ↓ NO

444 — PROVIDE ANALOG COMPOSITE DATA STREAM OUTPUT

PROVIDE DIGITAL COMPOSITE DATA STREAM OUTPUT — 442

*FIG. 10*

100110671-1
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Method, Node, and Network for Compositing a Three-Dimensional Stereo
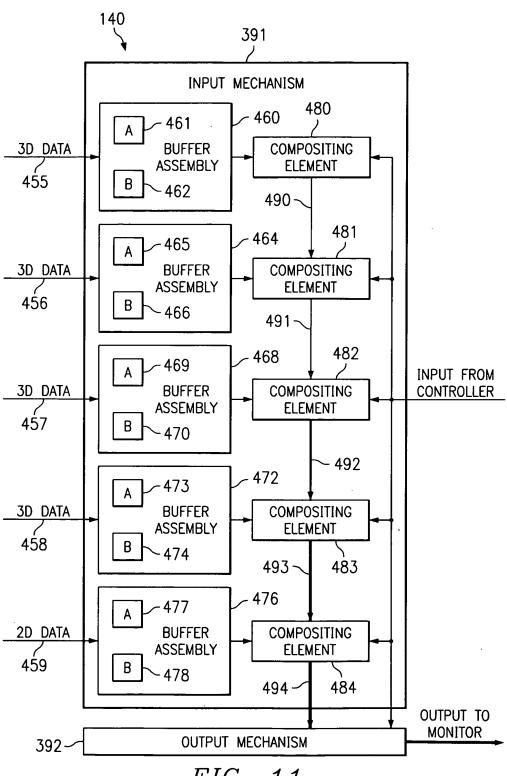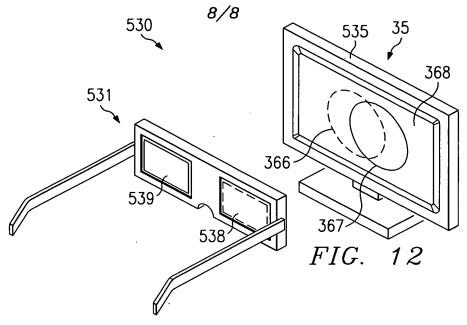Image from an Image Generated from a Non-Stereo Application
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140

391

**INPUT MECHANISM**

461 — A    460
**BUFFER ASSEMBLY**
462 — B

3D DATA
455

480
**COMPOSITING ELEMENT**

490

465 — A    464
**BUFFER ASSEMBLY**
466 — B

3D DATA
456

481
**COMPOSITING ELEMENT**

491

469 — A    468
**BUFFER ASSEMBLY**
470 — B

3D DATA
457

482
**COMPOSITING ELEMENT**

INPUT FROM CONTROLLER

492

473 — A    472
**BUFFER ASSEMBLY**
474 — B

3D DATA
458

**COMPOSITING ELEMENT**

493    483

477 — A    476
**BUFFER ASSEMBLY**
478 — B

2D DATA
459

**COMPOSITING ELEMENT**

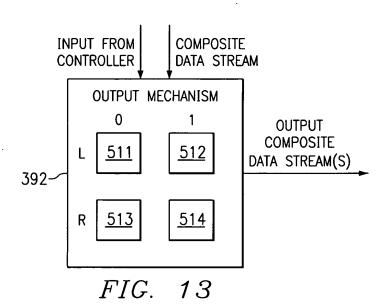494    484

392 — **OUTPUT MECHANISM**

OUTPUT TO MONITOR

*FIG. 11*

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Image from an Image Generated from a Non-Stereo Application

*FIG. 12*



*FIG. 13*

| FRAME BUFFER SEQUENCE | 0L | 0R | 1L | 1R |
|---|---|---|---|---|
| IMAGE SEQUENCE | 1 | | 2 | |

*FIG. 14*